

28. The heat exchanging fin according to claim 21, wherein each of said plurality of radially extended sections includes a rounded apex portion.

29. The heat exchanging fin according to claim 21, wherein an outer edge of each of said plurality of flares is in the general shape of an ellipse.--

Remarks

Claims 2-6, 8-10 and 21-29 are now present in the application. Amendments have been made to the Title, Abstract of the Disclosure and Specification. Claims 2-6 and 8-10 have been amended and claims 21-29 have been added. Claims 1, 7 and 11-20 have been cancelled. Claim 21 is independent. Reconsideration of this application, as amended, is respectfully requested.

Objection to the Drawings

The Drawings stand objected to by the Draftsperson on Form PTO 948. A separate Letter to the Official Draftsperson has been provided for the Examiner's consideration. It is respectfully requested that the Examiner approve the drawing corrections attached to the Letter to the Official Draftsperson.

It is respectfully requested that this drawing correction be held in abeyance until allowance of the above-identified application. At that time, the drawing correction will be implemented by a bonded draftsperson employed by the undersigned.

Restriction Requirement

Claims 11-20 stand withdrawn from further consideration by the Examiner as being drawn to a non-elected invention. Although the Examiner states that the election was made **without traverse** in paper no. 4, Applicant respectfully submits that this election was **with traverse**. It is the Examiner's position that the Restriction Requirement is still proper and has therefore been made final. Accordingly, Applicant has cancelled claims 11-20 as being drawn to the non-elected invention. Applicant filed a Divisional Application drawn to the non-elected invention on July 2, 1999.

Information Disclosure Statement

The Examiner states that the Information Disclosure Statement filed in the U.S. Patent and Trademark Office on March 18, 1999 has not been considered since the reference filed does not contain any drawings. The Examiner has requested that a complete copy of the reference be submitted for the Examiner's consideration. As the Examiner will note, a complete copy of the JP 63-80479 reference was submitted to the U.S. Patent and Trademark Office on May 10, 1999. Accordingly, it is respectfully requested that the Examiner consider the Information Disclosure Statement and forward an initialed copy of the PTO-1449 with the next Office Action.

Rejection under 35 U.S.C. § 102

Claims 1-10 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Dinh, U.S. Patent No. 5,582,246. This rejection is respectfully traversed.

Independent claim 1 has been cancelled and replaced with independent claim 21. Independent claim 21 generally includes the

subject matter of original claim 1 and original claim 7 which have been cancelled. Applicant respectfully submits that the references relied on by the Examiner fail to teach or suggest the present invention as required by independent claim 21.

The present invention as exemplified by independent claim 21 is drawn to a heat exchanging fin wherein a combination of elements are provided including a plurality of flares formed at respective front ends of each of the plurality of collars. Each of the plurality of flares includes a plurality of radially extending sections and a plurality of connecting sections. The plurality of radially extended sections radially extend outwardly from front ends of each of the plurality of collars. Furthermore, the plurality of connecting sections connects the adjacent radially extended sections and an outer edge of each of the plurality of connecting sections is formed into a straight line or a curved line expanded outwardly. Applicant respectfully submits that the Dinh reference relied on by the Examiner fails to teach or suggest the present invention as required by independent claim 21.

In particular, Dinh teaches a finned tube heat exchanger having secondary star fins formed thereon. Referring to Fig. 7 of Dinh, a heat exchanging fin 34A includes a metal sheet 36, a collar 44 and a plurality of triangular members 46 extended outwardly from the collar 44. Although the triangular members 46 extend radially outwardly from the front end of each of the collars 44, and may therefore be interpreted as teaching a plurality of radially extended sections, there are no connecting sections in addition to the radially extended sections which are formed into a straight line or a curved line expanded outwardly as required by independent claim 21. Referring again to Fig. 7, the triangular members 46 are formed from cutout portions of the generally planar surface 40 of the sheet 36 (see Figs. 4 and 5). Accordingly, when the triangular members 46 are bent outwardly as illustrated in Fig. 7, there is no flared

portion between each of the triangular members 46. Accordingly, although the Dinh reference may teach a plurality of radially extended sections, there is no teaching of providing a plurality of connecting sections as well.

In contradistinction, referring to Fig. 2 of the present invention, a plurality of radially extended sections 18a and a plurality of connecting sections 18b are each provided, the radially extended sections extending radially outwardly from each of the plurality of collars 20. Furthermore, the plurality of connecting sections connect the adjacent radially extended sections and are formed into a straight line or a curved line expanded outwardly. By providing the flares on each of the collars 20 formed by radially extended sections and connecting sections, a heat exchanging fin which is capable of preventing cracks from forming in the flares of the collared tube holes can be constructed of a material which is very thin and tough.

With regard to dependent claims 2-6 and 8-10, Applicant respectfully submits that these claims are allowable due to their dependence upon an allowable independent claim, as well as for the additional limitations provided by these claims. For example, dependent claim 3 requires that the outer edge of each of the plurality of flares is in the shape of a triangle or a tetragon. Although the Examiner included dependent claim 3 in the rejection in the first Office Action, Applicant respectfully submits that the Dinh reference fails to teach or suggest this aspect of the present invention. Although the triangular members 46 are of triangular shape, the flare itself of Dinh is formed by eight of the triangular members 46. Accordingly, the outer edge of the flare is not of triangular shape, but is of star shape. A triangle has three sides and a tetragon has four sides. The outer surface of the flare of Dinh has sixteen sides. Accordingly, the Dinh reference fails to teach or suggest the present invention as required by dependent claim 3. Dependent

claims 6 and 10 also recite that the outer edge of the flares are in the shape of a triangle or a tetragon. Accordingly, these claims are allowable for the same reasons mentioned above with regard to dependent claim 3.

Additional dependent claims 22-29 have also been added for the Examiner's consideration. Applicant respectfully submits that these claims are allowable due to their dependence upon allowable independent claim 1, as well as for the additional limitations provided by these claims. For example, dependent claim 23 recites that the plurality of radially extended sections and the plurality of connecting sections together form an outer edge of a respective of the flares. The outer edge is in the general shape of a triangle or a tetragon. As noted above with regard to dependent claim 3, the Dinh reference fails to teach or suggest an outer surface of the flare which has three or four sides such that it would be in the shape of a triangle or a tetragon. Accordingly, the Dinh reference fails to teach or suggest this aspect of the present invention as well.

With regard to dependent claim 24-26, Applicant respectfully submits that the Dinh reference fails to teach or suggest the provision of 2, 3 or 4 radially extended sections and 2, 3 or 4 connecting sections forming each of the plurality of flares as required by these claims. Referring to Fig. 7 of Dinh, there are eight triangular members 46 which form the flare which extends outwardly from the collar 44.

With regard to dependent claim 7, the Dinh reference fails to teach or suggest a flare which is a curvilinear surface and which is located at a spaced distance from an outer surface of the collar 44.

With regard to dependent claim 28, the Dinh reference fails to teach or suggest a rounded apex portion formed on the radially extended sections. Referring to Fig. 7 of Dinh, each of the triangular members 46 has a pointed apex.

With regard to dependent claim 29, the Dinh reference fails to teach or suggest an outer edge of the flare being in the general shape of an ellipse.

In view of the above amendments and remarks, Applicant respectfully submits that claims 2-6, 8-10 and 21-29 clearly define the present invention over the reference relied on by the Examiner. Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. § 102 are respectfully requested.

Conclusion

Since the remaining patents cited by the Examiner have not been utilized to reject the claims but merely to show the state of the art, no further comment is thereon necessary.

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding rejections and that they be withdrawn.

It is believed that a full and complete response has been made to the Office Action, and as such, the present application is in condition for allowance.

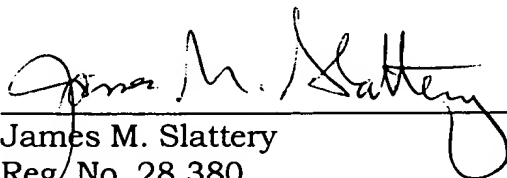
In the event there are any outstanding matters remaining in this application the Examiner is invited to contact Paul C. Lewis at (703) 205-8000 in the Washington, D.C. area to discuss these matters.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees

required under 37 C.F.R. §1.16 or under 37 C.F.R. §1.17, particularly,
extension of time fees.

Respectfully submitted,

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